

HAIR ACCESSORY APPLICATION DEVICE

CROSS REFERENCE TO RELATED APPLICATIONS

5 This application claims priority to U.S. Provisional
Application Serial No. 60/510,161, entitled AUTOMATIC HAIR
BEADING DEVICE, filed on October 10, 2003.

BACKGROUND OF THE INVENTION

10 1. Field of the Invention

 The present invention relates to devices for automatically
applying a hair accessory, such as a bead, to hair. More
particularly, the present invention relates to a device for
automatically applying a plurality of hair accessories to one or
15 more strands of hair.

2. Description of the Related Art

 It is known to provide devices that can be pre-loaded with
one or more accessories such as beads that are suitable to be
20 threaded over one or more strands of hair. Such known devices
typically have a rod for accommodating the accessories. The rod
has a hook extending therefrom along a longitudinal axis. The
hook is suitable to engage a hair swatch so that the accessories

may be slid over the rod and hook, and onto the hair swatch.

Some of these devices require an applied force, such as, for example, via a user's hand or by gravity, in order to advance the accessories from the rod and hook and onto the hair strands.

5 Other devices have an outer tube concentrically surrounding the hook and rod so that when the hook and rod are retracted relative to the tube, the tube end pushes one or more of the accessories off of the rod and hook and onto the hair strands during the retraction.

10 Inherent shortcomings associated with these known devices include the difficulty and/or awkwardness coupled with positioning and placing the accessories onto the hair and the relatively inefficient, error-prone application techniques associated with using such devices. Thus, there is a need for
15 an effective hair accessory application device which can automatically and efficiently move at least one, and more particularly a plurality of accessories onto one or more strands of hair.

20 SUMMARY OF THE INVENTION

It is an object of the present invention to provide an

improved hair accessory application device.

It is another object of the present invention to provide
and improved hair accessory application device that

5 automatically feeds one or more hair accessories onto one or
more strands of hair.

It is still another object of the present invention to
provide an improved hair accessory application device that

10 effectively and efficiently feeds one or more beads onto one or
more strands of hair.

It is yet another object of the present invention to
provide an improved hair accessory application device that is

15 ergonomically shaped for effective and versatile handling during
use.

These and other objects and advantages of the present
invention are achieved by a hair accessory application device

20 having a housing with at least two portions, a handle portion

and a head portion. The handle portion accommodates at least a portion of a drive assembly and the head portion accommodates at least a portion of a threading assembly. The threading assembly includes an accessory guide that is operatively connected to an accessory applicator that is in turn operatively connected to the drive assembly. Hair accessories such as beads with an aperture therein may be threaded or received over an accessory retaining shaft of the accessory guide and contained in an accessory retaining groove. The accessory retaining shaft has at least one hair engagement element that may extend beyond the accessory retaining groove. The accessory applicator may be positioned behind the accessories and, when activated, move along the accessory retaining shaft in order to push or pass one or more accessories from the accessory retaining shaft onto one or more strands of hair.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1a is a perspective view of a hair accessory application device in accordance with an illustrative embodiment of the present invention;

Fig. 1b is another perspective view of the hair accessory application device of Fig. 1a, showing different illustrative aspects thereof;

5 Fig. 2a is a perspective sectional view of the hair accessory application device of Figs. 1a and 1b, showing a portion of a drive assembly and a threading assembly in accordance with an illustrative embodiment of the present invention;

10 Fig. 2b is a perspective view of a portion of the threading assembly of Fig. 2a in accordance with an illustrative embodiment of the present invention;

15 Fig. 3 is a perspective sectional view of the hair accessory application device of Figs. 1a and 1b, showing a portion of the threading assembly of Fig. 2a in association with one or more hair accessories;

20 Fig. 4 is a schematic diagram illustrating a first

operational step in accordance with an illustrative embodiment of the present invention;

Fig. 5 is a schematic diagram illustrating a second
5 operational step in accordance with an illustrative embodiment of the present invention;

Fig. 6 is a schematic diagram illustrating a third
operational step in accordance with an illustrative embodiment
10 of the present invention;

Fig. 7 is a schematic diagram illustrating a fourth
operational step in accordance with an illustrative embodiment
of the present invention; and

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Fig. 8 is a schematic diagram illustrating a fifth
operational step in accordance with an illustrative embodiment
of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings and, in particular, Figs. 1a and 1b, a hair accessory application device in accordance with an illustrative embodiment of the present invention is shown and generally represented by reference numeral 1. Device 1 essentially has a first body or ergonomic handle portion 2 suitable for handling by an operator and for accommodating at least a portion of a drive assembly 4, and a second body or head portion 6 suitable for accommodating at least a portion of a threading assembly 8 (shown best in Figs. 2 and 3). Hair accessories 10, such as, for example, beads may be threaded or received over one or more strands of hair using device 1.

As shown, handle portion 2 is preferably ergonomically shaped and/or oriented for convenient, comfortable handling and may preferably have a control interface 12 for allowing an operator to control the operation of device 1. Also as reflected in Fig. 1b, control interface 12 may preferably be operatively connected to drive assembly 4 and drive assembly 4 may preferably be operatively connected to threading assembly 8. Control

interface 12 may preferably have any of a variety of shapes, sizes and/or configurations. For example, as shown, control interface 12 may have any of a variety of input selectors 14 (e.g., buttons, knobs, dials, touch-pads or touch-screens, etc.) for starting, 5 stopping and/or otherwise adjusting the operation of device 1.

Control interface 12, in one or more different aspects of the present invention, may also be provided with any of a variety of output indicators 16, such as, for example, visual indicators (e.g., LED/LCD displays, etc.), audible indicators (e.g., beeps, 10 automated voice, etc.), or tactile indicators (e.g., vibration, heat, etc.). Thus, control interface 12 may preferably cooperate with input selectors 14 and/or output indicators 16 to facilitate operative communication between the operator and device 1.

15 Drive assembly 4 is generally shown in phantom lines to demonstrate that it is housed by handle portion 2 and/or head portion 6 and to reflect that it may have any of a variety of configurations and/or components. For example, as shown in Figs. 2 and 3, drive assembly 4 may have a drive shaft 18 20 operatively connected to a drive motor 20 for generating a bi-directional, preferably rotational motion. In turn, drive shaft 18 may be either directly or indirectly operatively connected to

threading assembly 8 to provide the appropriate type and/or degree of motion thereto for effectively applying or threading one or more accessories 10 to one or more strands of hair.

Other configurations and/or components may also be used. It is

5 noted that device 1 is preferably electrically powered and may preferably be battery operated via one or more internal batteries 22 as shown in Fig. 2. Alternatively, device 1 may be run from an electric cord (not shown) connected to an electric power source.

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As shown, head portion 6 is preferably at least somewhat annular or disk shaped with at least one accessory guide 24 extending at least substantially about the entire perimeter of a central hub portion 26. Accessory guide 24 preferably has at
15 least one accessory retaining groove 28 and at least one accessory retaining shaft 30.

Accessory retaining groove 28 preferably runs along at least a substantial portion of accessory guide 24 and preferably
20 opens outwardly or away from central hub portion 26. Accessory retaining groove 28 may preferably accommodate accessories 10 of varying size and/or shape. Accessory retaining groove 28 may

also be adjustable to accommodate accessories 10 of notably different shapes, sizes and/or configurations.

Accessory retaining shaft 30 is preferably in and/or
5 operatively connected to accessory retaining groove 28 at one or more locations along accessory retaining groove 28. Accessory retaining shaft 30 preferably runs along at least a substantial portion of accessory retaining groove 28 and/or accessory guide
24. Accessory retaining shaft 30 may preferably be at least
10 somewhat curved to be at least somewhat parallel to the at least somewhat annular configuration of head portion 6. Accessory retaining shaft 30 and/or accessory retaining groove 28 preferably has an access gap 32.

15 Referring to Figs. 2 and 3, threading assembly 8 of head portion 6 preferably has at least one hair engaging element 34 and at least one accessory applicator 36. As shown, hair engaging element 34, in one aspect of the present invention, may preferably be a wire hook operatively connected to accessory
20 retaining shaft 30, for example. However, hair engaging element 34 may also have any of a variety of other configurations and/or components for safely and effectively grasping one or more

strands of hair. Also as shown, hair engaging element 34 may preferably be positioned in access gap 32 so as to facilitate in transferring one or more accessories 10 from accessory retaining shaft 30 and/or accessory retaining groove 28 to one or more
5 strands of hair.

Accessory applicator 36, in a preferred aspect of the present invention, preferably cooperates with accessory retaining groove 28 and/or accessory retaining shaft 30. That
10 is, accessory applicator 36 may preferably fit in accessory retaining groove 28 so as to be able to bi-directionally slide or move therein. In addition, accessory applicator 36 may preferably have one or more arms 38 for interacting with accessory retaining shaft 30 and/or one or more accessories 10
15 retained thereby. Arms 38 may in turn preferably be operatively connected to drive assembly 4 so that upon appropriate actuation of drive assembly 4, via control interface 12, arms 38 move along accessory retaining groove 28 and/or accessory retaining shaft 30 in at least one direction.

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As shown, in one aspect of the present invention, accessory applicator 36 may preferably be operatively connected to a first

gear 40, which in turn may be operatively connected to drive assembly 4 by one or more second gears 42. In another aspect of the present invention (not shown), accessory guide 24 and/or accessory retaining groove 28 may preferably have one or more slots (not shown) through which accessory applicator 36 may be operatively connected to drive assembly 4 via a stem 44, for example. Still other aspects of the present invention may utilize varied and diverse mechanisms for effectively and efficiently causing accessory applicator 36 to traverse accessory retaining groove 28.

Referring to Figs. 4 through 8, having identified and discussed some of the preferred aspects and/or features of the present invention, in use, device 1 may be operated by first loading device 1 by introducing one or more accessories 10 to accessory guide 24 as shown in Fig. 4, for example. Each accessory 10 may preferably have at least one aperture therein and may preferably be suitable to be placed in accessory retaining groove 28 and/or on accessory retaining shaft 30. Once device 1 has been loaded as desired, hair engaging element 34 may be used to engage and/or hold one or more strands of hair 11 in at least relatively close proximity to accessory guide 24,

via access gap 32 as shown in Fig. 5, for example. Preferably, accessory applicator 36 may then be actuated, via control interface 12 and/or drive assembly 4, to apply or cause at least one, and preferably two or more accessories 10 to the hair strands being held by hair engaging element 34 as shown in Fig. 6. Thus, hair engaging element 34 and accessory applicator 36 of threading assembly 8 preferably cooperate to efficiently apply or thread one or more accessories 10 to strands of hair 11. After a desired number of accessories 10 have been threaded onto the engaged hair strands, preferably a hair clamp or fastener 46 may preferably cooperate with one or more accessories 10 and/or the engaged or selected strands of hair 11 to prevent the threaded accessories from falling off the accessorized strands of hair 11. For example, fastener 46, in one aspect of the present invention, may preferably be a flexible band that is connected to an end accessory 48 as shown in Fig. 7. The flexible band may preferably be movable with respect to end accessory 48 so that one or more strands of hair 11 may be engaged as shown in Fig. 8 to hold end accessory 48 as well as any other accessory 10 above end accessory 48 in place on the engaged strands of hair 11. Thus, once end accessory 48 has been properly secured to the engaged strands of hair 11 by

fastener 46, the strands of hair 11 may preferably be disengaged or released from hair engaging element 34 to leave one or more accessories 10 on the strands of hair 11 to provide a decorative allure thereto.

5 The present invention having been thus described with particular reference to the preferred forms thereof, it will be obvious that various changes and modifications may be made therein without departing from the spirit of the present invention as defined herein. For example, head portion 6 may be
10 at least partially transparent to provide the user with a view of the internal components and/or loaded accessories prior to application. In addition, it is contemplated that the present invention may be used to apply a variety of articles, not limited to beads, to a variety of string-like objects, not
15 limited to strands of hair. Further, the present invention device may also be purely mechanical and human-powered, as opposed to electrically powered, using drives and lever mechanisms of the type generally-known.